

KU LEUVEN

kulab


EP

ReMI


Reliability in
Mechatronics and ICT

Embedded Software Engineering

TDD4ES & MC4ES




ing. Piet Cordemans




TDD4ES research overview



Literature study

Icon	Rating	Title
	4	Design Patterns: Elements of Reusable Object-Oriented Software


10/01/05



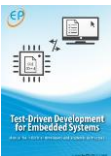
Case studies



Workshop




Manual




4 strategies


Test on target



Test on host




Remote testing & prototyping



CMS

<http://ep.khbo.be/TDD4ES>



KU LEUVEN


kulab

EP

MC4ES research overview


Design patterns

- Thread Pool Pattern
- Map/Reduce
- Loop parallelism
- Planar Pattern
- ...

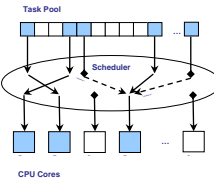


Testing

- Nonatomic operations
- Two-stage access bug pattern
- Wrong lock or no lock
- Double-checked locking
- A "blocking" critical section
- The sleep() bug
- Losing a notify
- Orphaned thread bug




Implementation




Tools


- Performance
- Safety
- Debugging
- Etc.




Literature study



Case studies



Manual



CMS

<http://ep.khbo.be/MC4ES>

Seminar: 28/11/2013

Embedded software quality:
opportunities & pitfalls

KU LEUVEN

kulab

